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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

ENGLUND, TERRY LEE

[REDACTED]

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------------------|-------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/848,625 | HENRY ET AL. | |
| | Examiner Terry L Englund | Art Unit 2816 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 May 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-8 and 10-18 is/are rejected.

7) Claim(s) 9 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 03 May 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Fig. 9 does not show "945" described on page 7, line 23. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to because it is believed the connections of the P-channel transistor(s) (e.g. see M1 of Fig. 3; M1 and M2 of Fig. 4; M91 of Fig. 9; and M101 and M102 of Fig. 10) are incorrect. As presently shown, it is not believed the transistors will conduct and turn-off as described within the specification. For additional details, see the related objections under the Specification section. Therefore, a proposed drawing correction or corrected drawings, and/or clarification, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Clarification is requested with respect to the operation of the circuit when transistor M1 of Fig. 3 is a P-channel transistor with its source coupled to 320 (see page 5, line 29 through page 6, line 8). As presently shown and described, it is not understood how M1 would even start conducting at startup, assuming there would be no charge on capacitor C1 yet.

This is because the gate and source would both be at the same voltage level. Also, it is not clear how M1 would turn off if its drain's supply signal had a transient event (i.e. sharp, temporary drop in voltage). Assuming capacitor C1 would be charged to the normal level of the supply signal during normal operations, it would appear the source of M1 would still have a higher voltage than ground, which is coupled to the gate of M1. If this is the case, M1 would continue to conduct. Therefore, clarification is requested with respect to how transistor M1 is shown connected within the circuit (e.g. in Fig. 3) and how the circuit actually operates with that connection. Similarly, clarification is requested with respect to how transistors M1 and M2 would actually function (e.g. see Fig. 4 and page 6, line 19 through page 7, line 9). For example, the examiner requests a clear description of, and/or a prior art reference that clearly shows and describes, the operation of two P-channel transistors coupled together (in series) by their sources.

Page 7, lines 10-11 are confusing because it appears to indicate both transistors M1 and M2 are replaced by a single diode. However, isn't each transistor replaced by a respective diode? Also, for the same reasoning as applied to the P-channel transistor of Fig. 3, clarification is requested with respect to the operation of transistor M91 as shown connected in Fig. 9 with its drain connected to receive the logic signal, and its source connected to capacitor C91. (See the description on page 7, line 20 through page 8, line 7.) It is believed "M91 and M92" on page 9, line 25 should be --M101, M102, M103, and M104-- to correspond to the transistors shown in Fig. 10 and cited on lines 17-18 and 22-23 of the same page. The same type of objections to the descriptions/operations of the circuits shown in Figs. 3, 4 and 9 also apply to the circuits

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shown in Figs. 5-7 and 10. Therefore, appropriate corrections are required to address/correct all these objections.

Claim Rejections under 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. Claim 1, lines 4-5 are misleading because they indicate the charge storage circuit receives the first signal and also outputs the second signal during a transient event. However, doesn't the charge storage circuit only receive the first signal when the signal transfer circuit is conducting?

Claims 11 and 12 both recite the limitation "the storage transfer circuit" on line 1 with insufficient antecedent basis for this limitation in the claim.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are how the complementary switch and charge storage circuit relate to one another.

Dependent claims carry over rejection(s) from claim(s) upon which they depend.

Claim Rejections under 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. The applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

In so far as being understood, claims 1-6, 8, 10-12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tailliet. In Fig. 2, Tailliet shows an apparatus comprising a signal transfer circuit 1 arranged to receive a supply signal Vdd and output a first signal Sd to a pin A of circuit 3 and also to charge storage circuit C2. Although the reference does not clearly describe normal and transient event operations, one of ordinary skill in the art would understand (e.g. find it obvious) that charge storage circuit C2 would be charged to Vdd by first signal Sd when the circuit is operating normally (e.g. transistor T1 of transfer circuit 1 is conducting when Vdd is stabilized and at an appropriate level), and when a transient event (Vdd drops sharply below the threshold level of transistor T1) occurs, the charge storage circuit C2 will provide its stored charge as the second signal to pin A of circuit 3. Therefore, it would be obvious to one of ordinary skill in the art that circuit 3 would be protected from a sudden, short

transient event, thus rendering claims 1 and 2 obvious. In this case, the circuit is protected from inadvertently changing the logic state of signal POR during a temporary transient. Since Tailliet shows signal transfer circuit 1 with transistor T1, and also discloses the use of diode-connected transistors with respect to transistor T1 (i.e. transfer circuit 1) on column 4, lines 63-65, claims 3 and 4 are rendered obvious. Also, the charge storage circuit C2 is shown comprising capacitor circuit C2, rendering claims 5 and 6 obvious. [Note that one of ordinary skill in the art would know capacitor circuit C2 would be sufficient in size to hold enough charge, otherwise circuit 3 could inadvertently switch its logic state during the transient event.] Interpreting Fig. 2 slightly different, the figure shows signal transfer circuit 1; charge storage circuit C2 receiving a bias signal from bias circuit 2 (e.g. see column 3, line 49); inverting circuit 4 receiving the first signal (from 1), the second signal (from C2) and the bias signal (from 2), wherein inverting circuit 4 is coupled to a pin (e.g. input) of circuit 5,6. During normal operations and a transient event, the pin will be held low (because node A will be high), and during startup it will be high (since node A will initially be low), thus rendering claims 8, and 10-12 obvious for the same reasons as previously described with respect to claims 1-6. Signal transfer circuit 1 is a means for receiving and monitoring a supply signal Vdd for a transient event; under normal operations, signal transfer circuit/means 1 provides a first signal to pin A of circuit 3, and during a transient event, charge storage circuit/means C2 provides a second signal to the pin of the circuit to allow the circuit to maintain its logic output state during the transient event. Therefore, Fig. 2 renders method claim 17 and apparatus claim 18 obvious.

No claim is allowable as presently written.

However, claim 9 is only objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There is presently no strong motivation to modify or combine any prior art reference(s) to ensure the inverting circuit is a Schmidt trigger as recited within claim 9.

Also, claims 7, and 13-16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims, where applicable. There is presently no strong motivation to modify or combine any prior art reference(s) to ensure: 1) the transistor circuit comprises the first and second transistors as recited within claims 7 and 13; and 2) have the complementary switch and charge storage circuit combination/relationship as independent claim 14 attempts to recite (upon which claims 15 and 16 depend).

The other prior art references cited on the accompanying PTO-892 are deemed relevant to at least sections of the claimed invention. Although not used in any formal rejections described above, it is believed each one of these circuits would operate in a manner similar to the Tailliet reference described above with respect to the rejections under 35 U.S.C. 103(a). Each circuit would allow a capacitor to charge during normal operations, and due to the characteristics of a capacitor, the charge on the capacitor would temporarily hold/maintain a level on the input pin of the circuit when a transient event occurs. Suda et al. shows a signal transfer circuit 90; charge storage circuit 92;

and circuit 58 in Fig. 8. Holst et al. shows a signal transfer circuit P1,N3,N2 ; charge storage circuit N4 ; and circuit 101,N5 in Fig. 1. Woods signal transfer circuit 110,120,132; charge storage circuit 134; and circuit 140 (with inverting circuit 142 comprising a Schmidt trigger 142). Therefore, all these references should be reviewed and considered carefully.

The prior art reference cited on the IDS submitted on May 3, 2001 was reviewed and considered. It does not clearly show or disclose the relationships between the signal transfer circuit, charge storage circuit, normal operation, and transient event as the claims recite.

Any inquiry concerning this communication from the examiner should be directed to Terry L. Englund whose telephone number is (703) 308-4817. The examiner can normally be reached Monday-Friday from 7 AM to 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (703) 308-4876. The fax number for TC 2800 is (703) 872-9318 for communications before a final action has been mailed, and (703) 872-9319 for communications after a final action.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.


Terry L. Englund

15 July 2002



TIMOTHY P. CALLAHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800